

WHAT IS CLAIMED IS:

- 1           1.     A method of controlling the operation of a vehicle with a radio  
2     communications circuit configured to communicate with a vehicle operator's handheld  
3     radio frequency transponder, the method comprising the steps of:  
4                 a.     providing the vehicle having the bi-directional radio  
5     communications circuit;  
6                 b.     providing the radio transponder to the vehicle operator;  
7                 c.     generating electromagnetic radiation from the radio  
8     communications circuit;  
9                 d.     bringing the transponder within the range of the  
10    electromagnetic radiation;  
11                e.     energizing the transponder by the electromagnetic radiation;  
12    transmitting first information from the transponder after the step of energizing the  
13    transponder;  
14                f.     receiving at the reader circuit the first information transmitted  
15    by the transponder; and  
16                g.     controlling at least one subsystem of the vehicle in response to  
17    the first information received at the transponder.
  
- 1           2.     The method of Claim 1, wherein the step of providing the radio  
2     transponder includes the step of providing the radio transponder with a low-power  
3     microcontroller configured to receive its operating power from the electromagnetic  
4     radiation.
  
- 1           3.     The method of Claim 2, wherein the step of providing the radio  
2     transponder includes the step of molding the radio transponder into a vehicle ignition  
3     key.
  
- 1           4.     The method of Claim 2, wherein the step of providing a radio  
2     transponder includes the step of embedding the radio transponder in a hand-held card.

1           5.       The method of Claim 4, wherein the step of providing a radio  
2 transponder includes the step of mechanically bonding the radio transponder to a  
3 vehicle ignition key.

1           6.       The method of Claim 1, wherein the step of transmitting the first  
2 information includes the step of transmitting a digital value that identifies the  
3 operator.

1           7.       The method of Claim 6, wherein the step of controlling at least one  
2 subsystem includes the step of comparing the digital value that identifies the operator  
3 with a value previously stored in the vehicle's controller.

1           8.       The method of Claim 7, wherein the step of controlling at least one  
2 subsystem of the vehicle includes the step of disabling the operation of one or more of  
3 the following subsystems:

- 4           a.       a fuel pump of the vehicle;
- 5           b.       a hydraulic system of the vehicle;
- 6           c.       a starting system of the vehicle;
- 7           d.       an electrical system of the vehicle;
- 8           e.       a transmission of the vehicle; and
- 9           f.       an engine of the vehicle.

1           9.       A method of controlling the operation of a vehicle in response to data  
2 received from a radio transponder, the vehicle having a short-range radio transceiver  
3 configured to selectively energize the transponder when it is in close proximity to an  
4 operator's station of the vehicle, the method including the steps of:  
5           a.       storing data in the transponder indicative of the operator;  
6           b.       bringing the transponder into close proximity of the operator's  
7 station of the vehicle;  
8           c.       generating by the vehicle of an electromagnetic field sufficient  
9 to energize the transponder;  
10           d.       downloading from the transponder to the vehicle the data  
11 indicative of the operator;

- 12 e. comparing by the vehicle of the downloaded data indicative of  
 13 the operator with data previously stored in the vehicle; and  
 14 f. limiting the functionality of the vehicle based upon the step of  
 15 comparing.

1 10. The method of Claim 9, wherein the data indicative of the operator  
 2 includes data indicative of the vehicle operational parameters.

1 11. The method of Claim 10, wherein the operational parameters include a  
 2 distance traveled.

1 12. The method of Claim 10, wherein the operational parameters include a  
 2 geographical area in which the vehicle may be driven.

1 13. The method of Claim 10, wherein the operational parameters includes  
 2 times of the day during which operation is permitted.

1 14. The method of Claim 10, wherein the operational parameters include  
 2 an elapsed time of operation.

1 15. The method of Claim 10, wherein the operational parameters include a  
 2 maximum engine load.

1 16. The method of Claim 10, wherein the operational parameters include a  
 2 maximum speed of the vehicle.

1 17. A system for controlling the operation of a vehicle comprising:  
 2 a. a portable radio transponder including a microcontroller and an  
 3 digital memory, wherein the digital memory includes data indicative of an operator of  
 4 a vehicle;  
 5 b. a vehicle further comprising:  
 6 i. a transponder reader circuit configured to transmit  
 7 electromagnetic radiation sufficient to energize and

8 enable the transponder to transmit the data at a  
9 transponder radio frequency; and  
10 ii. a control system configured to input the data from the  
11 transponder reader circuit and to control operation of  
12 the vehicle in response to the data.

1 18. The system for controlling the operation of a vehicle of Claim 17,  
2 wherein the control system is configured to set a vehicle speed limit based upon the  
3 data received from the transponder.

1 19. The system for controlling the operation of a vehicle of Claim 17,  
2 wherein the control system is configured to set a maximum engine RPM based upon  
3 the data received from the transponder.

1 20. The system for controlling the operation of a vehicle of Claim 17,  
2 wherein the control system is configured to set a maximum engine load based upon  
3 the data received from the transponder.

1 21. The system for controlling the operation of a vehicle of Claim 17,  
2 wherein the control system is configured to disable the vehicle after a predetermined  
3 amount of time of operation based upon the data received from the transponder.

1 22. The system for controlling the operation of a vehicle of Claim 17,  
2 wherein the control system is configured to disable the vehicle if it travels outside a  
3 predetermined geographical area of operation.

1 23. The system for controlling the operation of a vehicle wherein the  
2 control system is configured to prevent the operation of the vehicle outside of  
3 predetermined time intervals each day based upon the data received from the  
4 transponder.